TS2000

Installation & User Guide



Compatible Equipment

CPA6 OM - Output Module
9040 - Loudspeaker
DC54/58 - Digital Communicators

OVERVIEW

Introduction

The Intruder Alarm Control System TS2000 is provided for large domestic and general commercial intruder systems conforming to BS 4737 part 1 1986. It is an extremely versatile system with the following facilities:

1. Will monitor up to 128 zones using various types of detector device;
2. Will provide up to 136 output signals whose response may be programmed;
3. May be programmed to provide a large number of operational options and facilities.

As the system is microprocessor controlled it must be programmed initially to select the required user options such as number of zones, type of alarm and time of operation. The general principle of operation is to monitor protected zones, each having a detection circuit, to detect the circuit status, then to respond accordingly. As each zone has a circuit the terms Zone and Circuit may be considered as being synonymous but the term Circuit is generally used. Circuits may also be grouped into wards.

Equipment

The system consists of a number of units that are interconnected by a Control Network:

1. Control Panel (CP): This is the controlling panel for the system which:
   (a) provides power to the system;
   (b) communicates with and monitors the state of the units connected to the Control Network and responds to alarm conditions according to the pre-programmed instructions;
   (c) provides special outputs to a printer, a Digital Communicator, a Modem and other devices if required.

It has no front panel controls and may be sited at any convenient internal location.

2. Node Unit (NU): a unit that is remote from the CP and is connected to it via the Control Network. It will monitor the status of up to four circuits and will also provide up to four programmable outputs which are controlled by the CP;
3. Remote Keypad Node Unit (REM): has the same functions as the NU and in addition has a Keyboard and a 40 character display to allow operators to control the system.

The system will consist of a CP connected, via the Control Network, to up to 32 NU's and or REM's so providing up to 128 circuits and programmable outputs each of whose functioning and use are pre-programmed. At least one REM is required to control the system.

CP Options

Additional boards may be fitted to the CP as follows:

1. Serial Interface Board (SIB): Provides a serial output:
   (a) RS232 format for a serial printer;
   (b) RS232 format to any suitable equipment;
2. Parallel Interface Board (PIB): Provides up to eight output ports which may be programmed to respond to system activity and which can also be used to provide outputs to a separate Digital Communicator. It also has a (telephone) Line Fault input port.
3. Digital Communicator type DC3 (Digicom): Will transfer status information from the CP to a dedicated Central Station via PSTN lines. When activated via any of its eight logic input channels it will:
   (a) Dial one or two telephone numbers;
   (b) Transfer an account (identity) number to the dialled station;
   (c) Transfer channel status information.

Modem type DC3M (Digimodem): Will transfer data over PSTN lines to any suitable equipment such as a modem for a computer terminal. When activated the system will dial one or two telephone numbers and will be capable of transferring all commissioning information, event log data etc., to a remote maintenance centre. The remote maintenance centre may also call the DC3M and transfer data to it.

Additional Equipments

Ward Control Unit (WCU): When fitted the WCU will allow a group of circuits, which are designated a Ward, to be Set and Unset using Exit and Entry routes separate from the system. The WCU is connected to the outputs and circuits of a REM or a NU and will require a separate 12V supply.

Printer: An Epson printer P40-S may be connected temporarily to the CP or to the SIB to provide printout records. Other printers that accept RS232 serial data may be permanently connected to the SIB if permanent records are required.

Power Supply Unit: All power can be supplied from the TS2000 CP internal Power Supply Unit but in large systems it may be necessary to fit additional power supply units. The PSU150 has been designed for use with the TS2000 system and consists of a PSU and battery (supplied separately) and it may also have a Node Unit and a Relay Unit fitted in its enclosure.

Output Modules (OM): If remote indicators or Mimic Panels containing LEDs are required then Output Modules type CPA6.OM may be connected to the CP. Each OM unit will drive up to eight LEDs and the units may be interconnected for large displays. The system may be programmed so that the LEDs indicate circuit condition or alarms and ward status if wards are programmed.

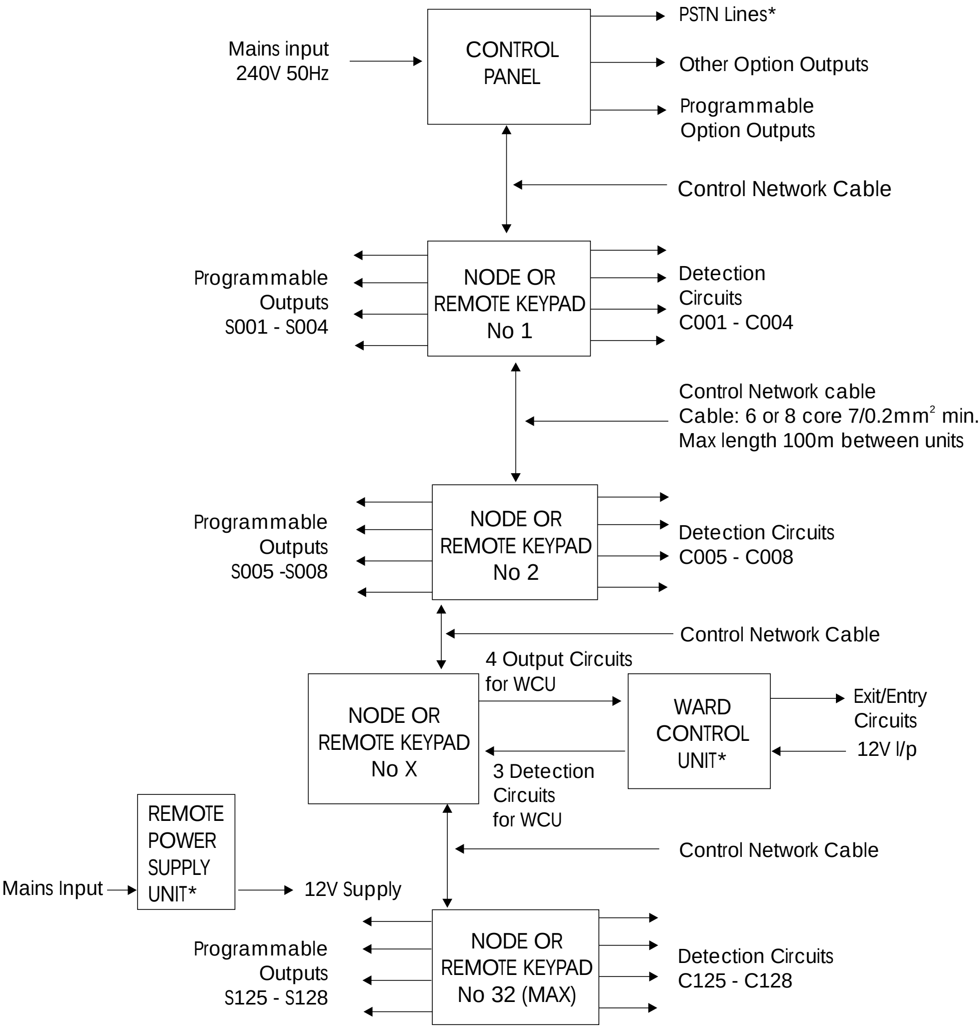
Extension loudspeakers: The REM contain a small sounder unit to provide an indication of the system status. If the volume of the sounder is insufficient (e.g. a louder exit sound is required) then an extension speaker may be fitted to the NU and this will require a Loudspeaker Drive Unit type LSD1 to be connected between the NU and the loudspeaker. A separate 12V power supply will also be required.

Relay Unit: The NU and REM programmable outputs will provide current limited drive for various facilities but in many cases it will be necessary to isolate the system from the external equipment by driving via relays. Relay Units type RM3A provide two relays, which may be energised by NU or REM programmable outputs, and which provide two sets of 'clean' change over contacts. The unit may be fitted separately or in a PSU150 case.

Remote Data Transfer

When fitted with a Digimodem type DC3M the system may be programmed from a remote location, and log data transferred to it, using a dedicated program installed in a Personal Computer at that location. The use of this facility is protected by a series of passcodes and user menus.

Schematic Block Diagram



*= Option

Distance between Nodes/Keypads must be less than 100m.
Distance between Control Panel and last Node/Keypad must be less than 1km

Figure 1. TS2000 Schematic Block Diagram

TS2000 System Options - Schematic

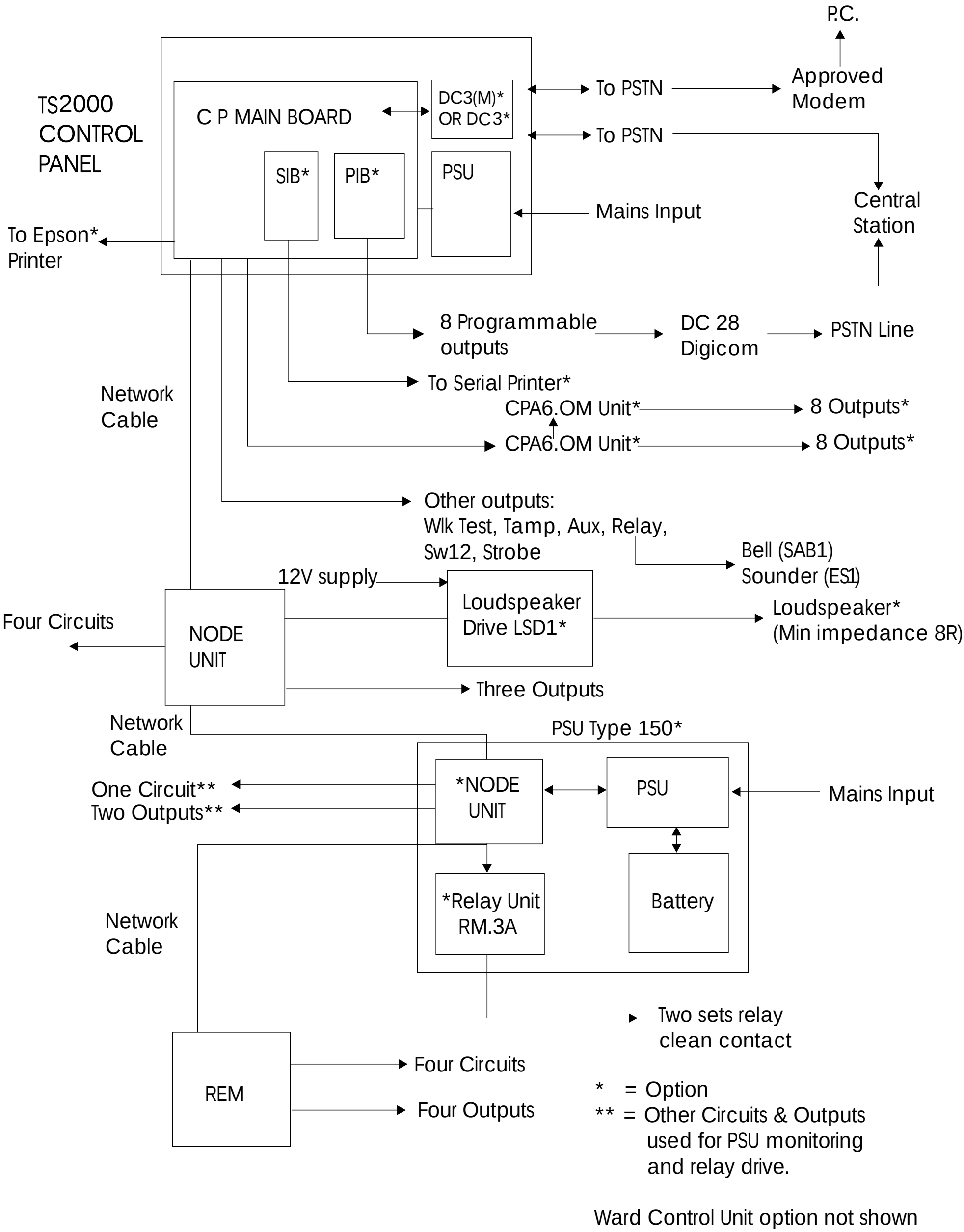


Figure 2. TS2000 System Options - Schematic

Equipment

System Specification

Supply Voltage:		240V + or - 10% 30W 50 Hz
Battery:		12V 6Ah
Zones:		128 maximum
Outputs:		128 remote 8 local maximum
Unit Dimensions:	CP	L 395 x W 280 x D 100mm
(boxed)	NU/WCU	L 145 x W 85 x D 50mm
	REM	L 220 x W 145 x D 40mm
Unit Weights:	CP	4 kg
	NU/WCU	220 g
	REM	430 g
Environment:		0 - 40°C 95% RH n.c.

Control Panel (CP)

The CP comprises electronic units inside a white polycarbonate lid and a steel base which are factory assembled to hinge on the left but which may be reversed if required.

The Base Unit contains the mains input terminals and a mains transformer. Space is provided for a battery and also for a Digital Communicator. Cable entry points are provided as follows:

1. Four 20mm knockouts top and bottom;
2. Two Holes for plastic trunking fitted with plastic inserts top and bottom;
3. 13mm round knockouts fitted in the plastic inserts;
4. Four 20 mm round holes in the back.

The lid unit contains the Main Control printed circuit board (pcb) and the Power Supply pcb which are secured on posts and on which are fitted terminals for external connections. Option Boards (SIB and PIB) may also be fitted to the main board.

Under normal conditions the unit can be positioned at any location as access will only be required for maintenance.

Power Supply

The CP is fitted with the system combined Power Supply and Battery Charger Unit and a battery which will provide power during a mains failure. Power arrangements are as follows:

1 Mains input 240V +/- 10%

2 Battery 12V 6Ah Sealed Lead Acid rechargeable type which is normally float charged at about 13.6V;

3. System regulated supply 12V with a maximum output of 1.5A. The internal supply is load protected and the external supply fused;

4. System internal 5V supply;

5. Standby operation during a mains failure depends upon battery size and the size of the system. Current consumption may be calculated as follows:

   (a) CP: normal 150mA; alarm 500mA;

   (b) Each NU (with 4 circuits connected): normal 33mA;

   (c) Each REM (with 4 circuits connected): normal 33mA;

   (d) Each NU/REM in alarm - load depends upon outputs used;

6 Power supply fault monitoring is for loss of mains supply, low system supply voltage and low battery voltage;

7 Fuses are fitted on the PSU as follows:

   (a) F1: 1A QB for low voltage a.c. input;

   (b) F2: 2A QB for 12V dc external output;

8 In-line Fuseholder: 1A QB for Network 12V supply;

9 A 1A fused terminal block is fitted for the mains input.

Node Unit (NU)

The NU comprises a small two part polycarbonate case containing a single pcb on which are terminal blocks. The unit is connected to the control network and is a control and connecting device for four circuits and four programmable outputs. It also contains a sounder output and a sounder mute output. It has no external controls hence it may be positioned at any convenient location as access is normally only required for maintenance. The unit is surface mounted and has cable entry points in the base top and bottom.

Remote Keypad Node Unit (REM)

The REM comprises a small two part polycarbonate case containing a pcb and the system controls consisting of:

1. A 15 key tactile keypad for entering data and programming the system. When in use the keypad is illuminated;
2. A liquid crystal display (LCD) of two lines of 20 characters each which provides system status information and gives directions when programming the system.

The unit is connected to the control network and is a control and connecting device for four circuits and four programmable outputs. The base contains a terminal block for all external connections and the unit is fitted with an internal sounder which provides local alarms and system status sounds. The unit is surface mounted and has cable entry points in the base on all four sides.

The REM's are used to control and programme the system hence they must be positioned at suitable control positions with easy access.

Ward Control Unit (WCU)

The WCU comprises the same case as the NU and contains a single pcb on which are terminal blocks. If fitted the unit acts as a control and interface device to allow a designated Ward to be Set and Unset using its own dedicated Exit and Entry route and units. The WCU may be positioned at any location normally adjacent to its Exit/Entry devices and to its controlling REM or NU. The unit is surface mounted and has cable entry points in the base top and bottom. It contains controls for its Ward for setting the entry time, exit time and settling time and links to select the type of exit procedure.

System Control Network

The CP supplies power to and monitors all the connected NU and REM via a six or eight wire Control Network. Each connected unit is 'daisy chained' to the Network and the maximum permitted distance between units is 100m but the furthest unit in a full system is limited to a total cable length of 1 km from the CP.

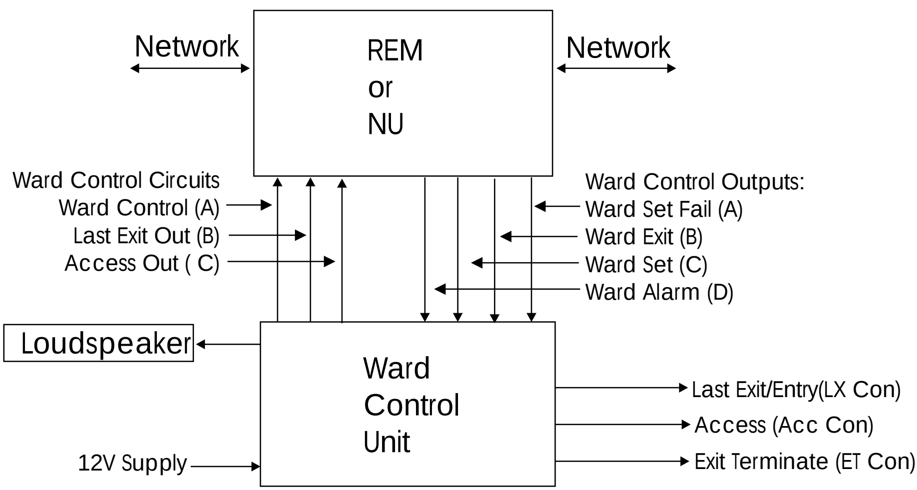


Figure 3. Ward Control Unit Schematic

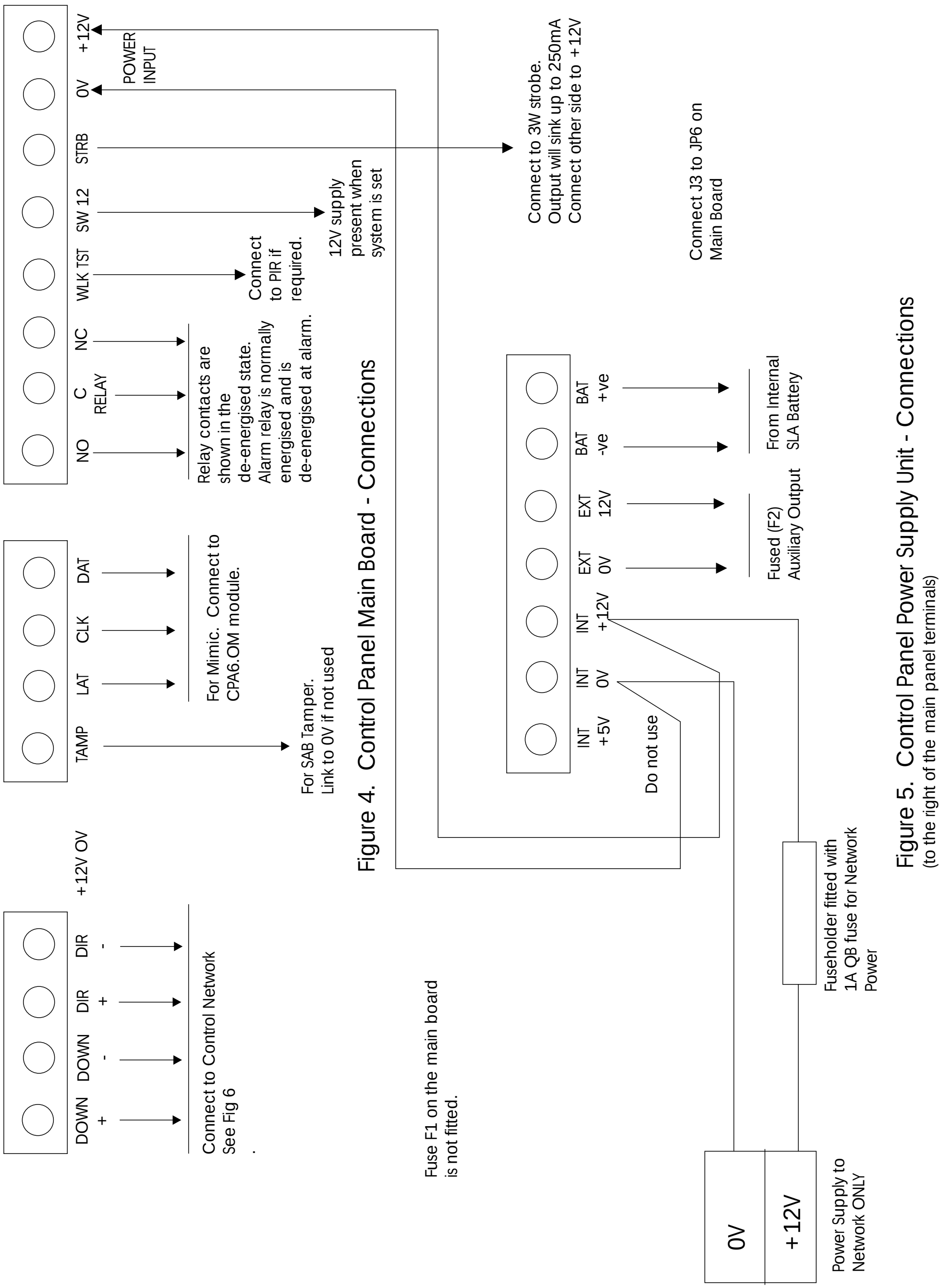


Figure 4. Control Panel Main Board - Connections

Figure 5. Control Panel Power Supply Unit - Connections
(to the right of the main panel terminals)

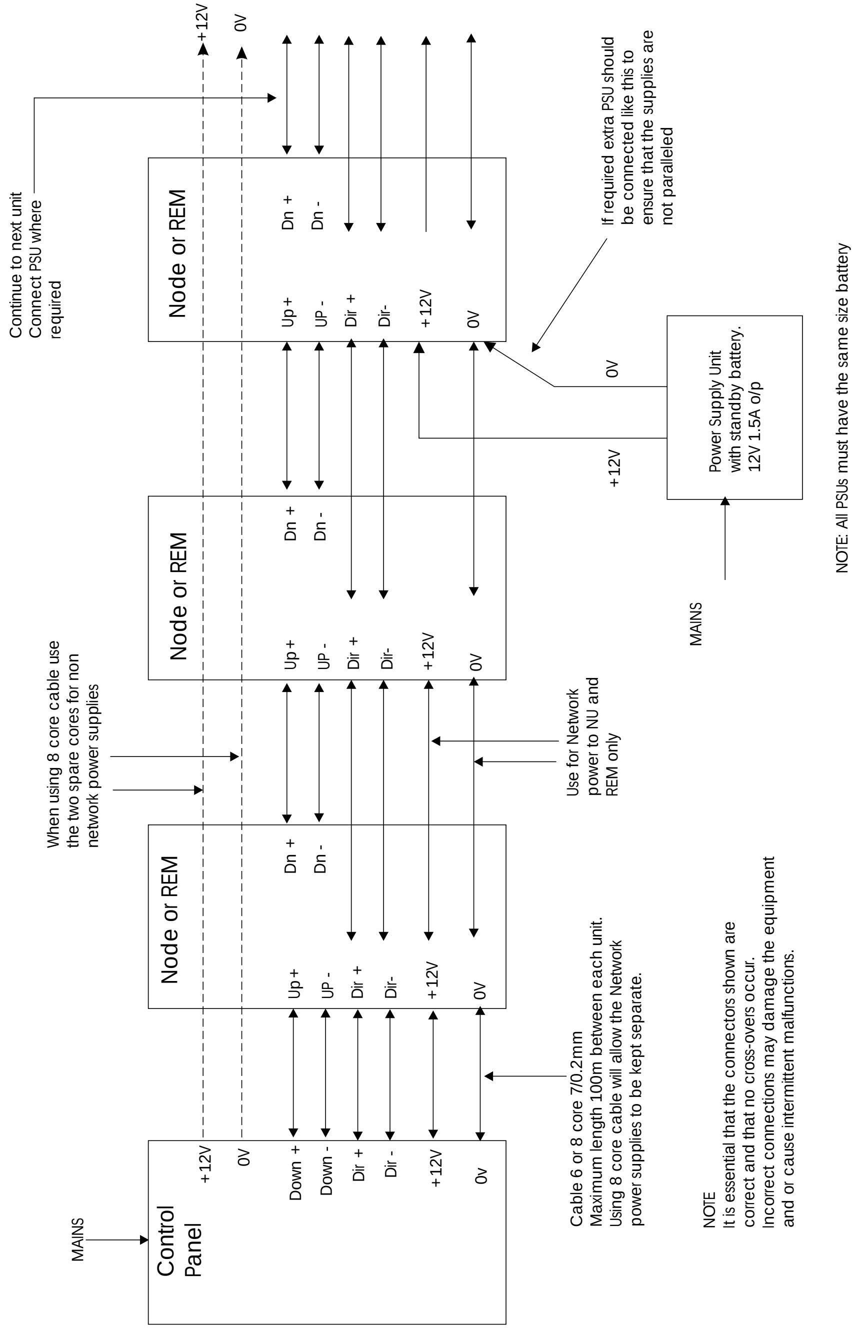


Figure 6. TS2000 Network Connections

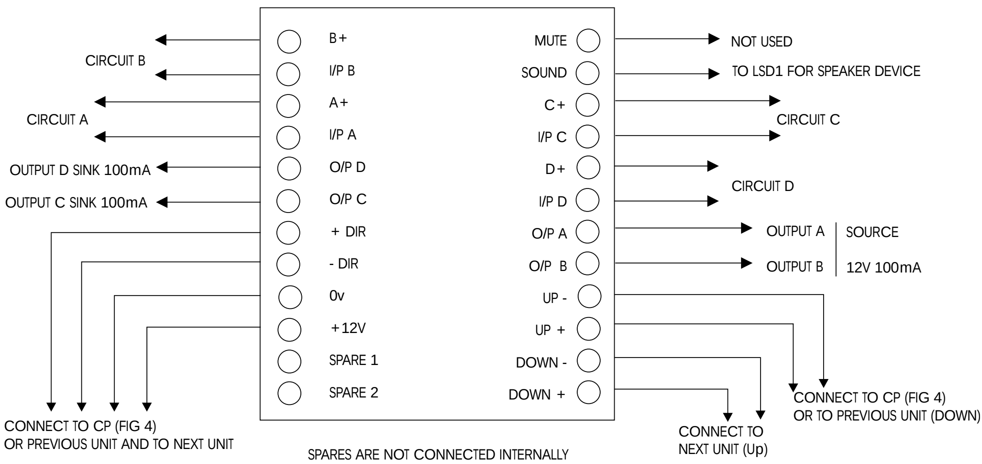


Figure 7 TS2000 Node Unit - Connections

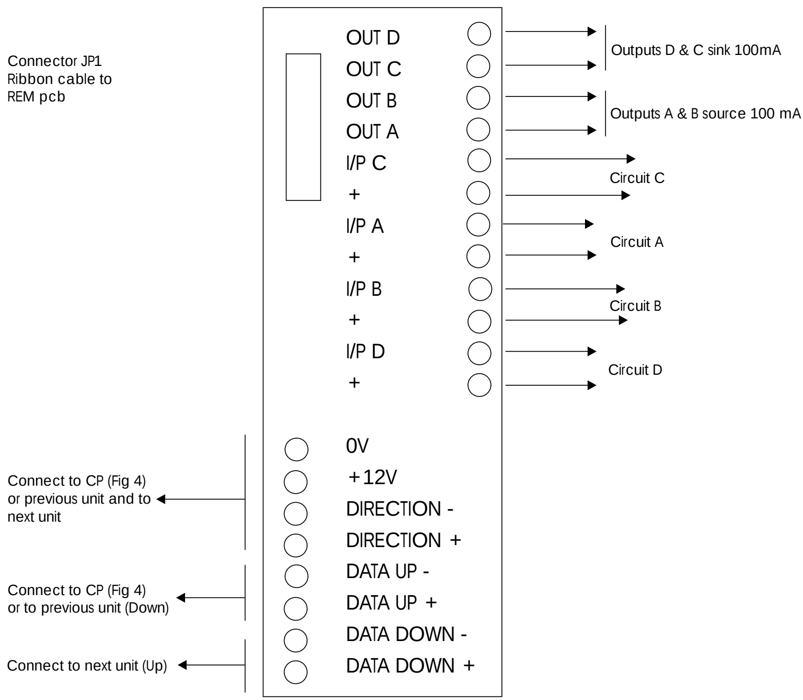
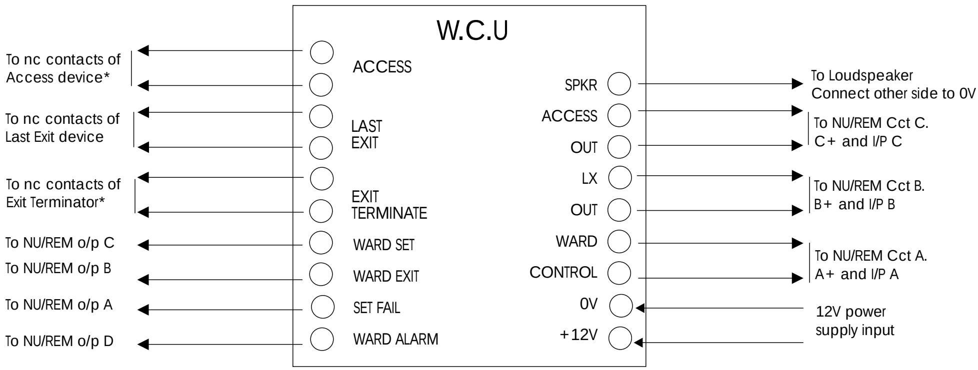


Figure 8. TS2000 Remote Keypad Node - Connections



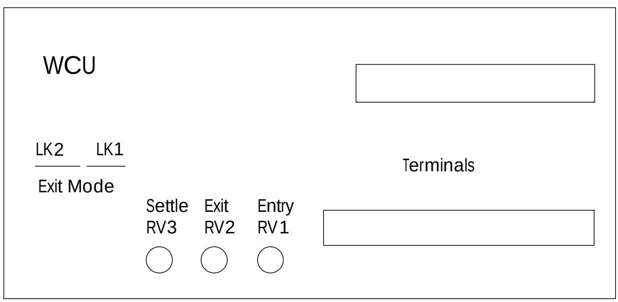
* = options

Power supply must be sufficient to power the Loudspeaker (1A). Do not use Network power. Connect 0V to Network 0V.

Programme Outputs as Ward X Outputs:
A = Set Fail　　C = Set
B = Exit　　D = Alarm

Programme circuits in ward X
A = Ward Control
B & C = Night

Figure 9 TS2000 Ward Control Unit - Connections



	Open	Closed
Link 1 Link 2	Timed Set Last Exit Set*	Last Exit Set Exit Terminator Set*

* Only if link 1 is closed

Timers:
RV1 = Entry Time 0 - 255 secs
RV2 = Exit Time 0 - 255 secs
RV3 = Exit Settling Time 0 - 40 secs

Figure 10. Ward Control Unit - Layout and Settings

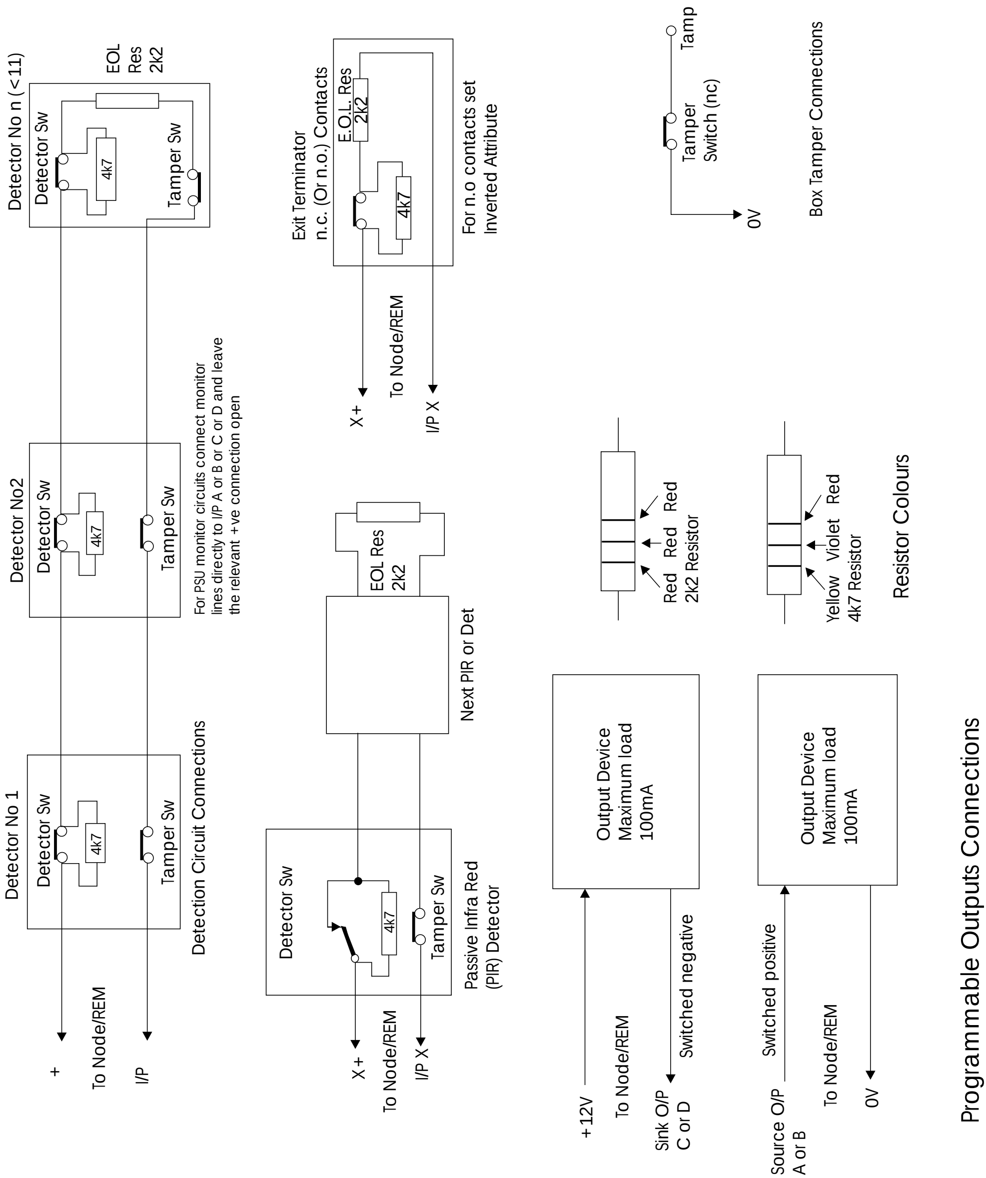


Figure 11. TS2000 Circuit and Output Connections

Key Functions

Engineer Reset

1. Enter your engineer's code default 1234, you are now in Engineer's Mode
2. Press [0] in quit to unset.

Loading Defaults

1. Power down panel battery and mains, close LK2
2. Power up panel battery and mains
3. Enter 1234 and open LK2
4. The panel is back to Factory Default Programming.

Bell Test/Walk Test

Please refer to page 19

Memory Default Values

When a CP is shipped from the factory the memory data default parameters are set to:

1. Circuits: The Type and Attributes Parameters set will depend upon the number of circuits detected;
2. Passcodes: Engineer 1234: Master 5678: Others unspecified;
3. Timers: Exit 25 secs: Exit Settling 5 secs: First Entry 30 secs: Second entry 30 seconds: Bell delay 5 mins: Bell Duration 20 mins: Comms Delay 1.5 mins: Lights Off 5 secs: Mains Off 10 secs: Menu Timeout 30 secs: Double Knock 10 secs.

These values will also be restored if a Factory Restart occurs.

Control Panel Links

Link	Functions
LK1	Open: Printer to monitor Network activity Closed: Normal; Printer normal and responds to keypad commands
LK2	Open: Normal; On-site restart at power up Closed:Factory restart at power up
LK3	DC3 Monitor; Leave closed
JP5	Normally fitted with links Remove and fit Engineer's REM if required.
JP9	Open: Novram battery isolated Closed: Normal; Novram battery connected
JP13	Open: Normal Closed: Soft reset

Fuses

Fuse	Value	Use
PSU F1	1AQB	Low voltage ac input
PSU F2	2A QB	12V external (auxiliary) supply
Fuseholder	1A QB	Network 12V supply
Fused terminal Block	1A	Mains input

Define Circuit Text

STEP	ACTION	DISPLAY	REMARKS
1	NO*	Press < YES > to DEFINE CIRCUIT TEXT	Press YES to Define Circuit Text from the dictionary. Press NO to go to to Install DC3 menu. Press 0 to quit
2	YES	CCT > 001 000 000 000	Press YES to accept displayed data. Press NO to change it. Enter figures or use arrow keys to enter a new circuit
3	NO	CCT 001 > 000 000 000	Text is to be changed. Enter number of the first word of text (see dictionary) then press YES to accept it
4	123	CCT 001>123 000 000 TEXT	First word of text entered. Press YES to accept it
5	YES	CCT 001 123 > 000 000 TEXT	First word accepted and displayed. Repeat the procedure tor the other two words
6	YES	CCT >001 123 456 789 TEXT TEXT TEXT	All words entered and accepted. Press YES to go to next circuit or use figures or arrows to select another circuit. Enter 000 to quit
7	000	CCT > 000 NOT VALID YES to continue	Press YES to go to step 1
8	YES	Press YES to DEFINE CIRCUIT TEXT	Press NO to go to Install DC3 menu. Press YES to repeat this menu. Use arrow keys to step through menus. Press 0 to quit

* from last step of previous Menu

TS2000 Dictionary

001 A
002 ABOVE
003 ACCESS
004 ACCOUNTS
005 ADMIN
006 ALARM
007 ALERT
008 ANNEXE
009 AREA
010 ART
011 ASSEMBLY
012 ASSISTANT
013 AT
014 ATTACK
015 ATTIC
016 AUTOMATIC
017 AUXILIARY

018 B
019 BACK
020 BAGGAGE
021 BAKERY
022 BALCONY
023 BALLROOM
024 BANKING
025 BAR
026 BARN
027 BASEMENT
028 BATHROOM
029 BAY
030 BEAM
031 BEDROOM
032 BELL
033 BELOW
034 BESIDE
035 BLOCK
036 BLUE
037 BOARD
038 BODY
039 BOILER
040 BOTTOM
041 BOX
042 BOYS
043 BRANCH
044 BROWN
045 BUILDING
046 BUNKER
047 BY

048 C
049 CABINET
050 CALL
051 CANTEEN
052 CAR
053 CARGO
054 CASH
055 CASHIER
056 CEILING
057 CELL
058 CELLAR
059 CENTRAL
060 CENTRE
061 CHAIR
062 CHANGING
063 CLASSROOM
064 CLEANERS
065 CLERK
066 CLERKS
067 COIN
068 COLD
069 COLLECTION
070 COMMUNICATOR
071 COMPUTER
072 CONFERENCE
073 CONTAINER
074 CONTACT
075 CONSERVATORY
076 CORNER
077 CORRIDOR
078 COUNTER
079 CUPBOARD

080 D
081 DARK-ROOM
082 DATA
083 DAY
084 DEPARTURE
085 DEPUTY
086 DEPT.
087 DESIGN
088 DESK
089 DETECTOR
090 DEVELOPMENT
091 DEVICE
092 DINING
093 DIRECTOR
094 DISPATCH
095 DOOR
096 DOUBLE
097 DOWNSTAIRS
098 DRAWER
099 DRAWING
100 DRINKS
101 DRIVE
102 DRUGS

103 E
104 EAST
105 ELECTRIC
106 ELECTRONICS
107 EMERGENCY
108 END
109 ENGINE
110 ENGINEERS
111 ENTRANCE
112 ENTRY
113 EQUIPMENT
114 ESCAPE
115 EXIT
116 EXPORT
117 EXTERNAL

118 F
119 FACTORY
120 FAILURE
121 FAR
122 FEMALE
123 FENCE
124 FILING
125 FIRE
126 FIRST
127 FIRST-AID
128 FLAT
129 FLOOR
130 FOR
131 FOREIGN
132 FREEZER
133 FROM
134 FRONT

135 G
136 GAMES
137 GARAGE
138 GARDEN
139 GATE
140 GENTS
141 GIRLS
142 GLASS
143 GOLD
144 GOODS
145 GREEN
146 GROUND
147 GROUP
148 GUARD
149 GUN
150 GYM

151 H
152 HALL
153 HANGER
154 HEAD
155 HEAT
156 HIGH
157 HOME
158 HOT
159 HOUSE

160 I
161 IN
162 INDUSTRIAL
163 INFORMATION

TS2000 Dictionary Cont'd

164 INFRA-RED
165 INSIDE
166 INSTRUCTORS
167 INTERIOR
168 INTO
169 IRON
170 IT

171 J
172 JANITOR
173 JUNIOR

174 K
175 KEEP
176 KEYPAD
177 KITCHEN

178 L
179 LAB
180 LADIES
181 LANDING
182 LAST
183 LAUNDRY
184 LAVATORY
185 LAWN
186 LECTURE
187 LEFT
188 LEVEL
189 L.H.S.
190 LIBRARY
191 LIFT
192 LIGHT
193 LINE
194 LITTLE
195 LOADING
196 LOBBY
197 LOCK
198 LOFT
199 LORRY
200 LOUNGE
201 LOW

202 M
203 MACHINE
204 MAGNETIC
205 MAIN
206 MAJOR
207 MALE
208 MAN
209 MANAGER
210 MANAGERS
211 MASTER
212 MAT
213 MEDICAL
214 MEN
215 MESS
216 METAL
217 METER
218 MEZZANINE
219 MICROWAVE
220 MIDDLE
221 MILK
222 MINOR
223 MOBILE
224 MODEL
225 MONITOR
226 MOULDING
227 MOVEMENT

228 N
229 NEAR
230 NEW
231 NEXT
232 NIGHT
233 NODE
234 NURSE
235 NURSERY
236 NORTH

237 O
238 OF
239 OFFICE
240 OFFICER
241 OIL
242 ON
243 OPEN
244 ORANGE
245 OUT
246 OUTER
247 OUTSIDE

248 P
249 P.A. BUTTON
250 PACKING
251 PAINT
252 PANEL
253 PANIC
254 PARCEL
255 PARK
256 PARTITION
257 PASSIVE
258 PATH
259 PATIO
260 PENTHOUSE
261 PERIMETER
262 PERSONNEL
263 PIR
264 PIR BY
265 PIR IN
266 PIR ON
267 PLANT
268 PLAY
269 POINT
270 POOL
271 PORCH
272 POST
273 POWER
274 PRESSURE
275 PRIMARY
276 PRIME
277 PRINT
278 PROCESSING
279 PRODUCTION
280 PUBLIC
281 PURCHASING
282 PURPLE

283 Q
284 QUALITY
285 QUIET

286 R
287 RANGE
288 READING
289 REAR
290 RECEPTION
291 RECORDS
292 RED
293 REFECTORY
294 REPAIR
295 RESEARCH
296 REST
297 RESTAURANT
298 REVOLVING
299 RIGHT
300 R.H.S.
301 ROLLER
302 ROOF
303 ROOM
304 ROUND

305 S
306 SAFE
307 SALES
308 SCREEN
309 SEA
310 SECURE
311 SECRETARIES
312 SECRETARY
313 SECTION
314 SECURITY
315 SENSOR
316 SHAFT
317 SHED
318 SHOP
319 SHOW-ROOM
320 SHORT
321 SHUTTER
322 SIDE
323 SILENT
324 SILVER

TS2000 Dictionary Cont'd

325 SITE
326 SITTING
327 SLIDING
328 SMOKE
329 SOFTWARE
330 SOUND
331 SOUTH
332 SPRAY
333 SPRING
334 SQUARE
335 SQUASH
336 STABLE
337 STAFF
338 STAIRS
339 STAIRWELL
340 STALLS
341 STAND
342 START
343 STATION
344 STOP
345 STORE
346 STORES
347 STROBE
348 STRONG
349 STUDY
350 SUITE
351 SUMMER
352 SUNDAY
353 SUPPLY
354 SURGERY
355 SWIMMING
356 SWITCH
357 SYSTEM

358 T
359 TABLE
360 TALL
361 TAMPER
362 TEA
363 TEACHER
364 TECHNICAL
365 TECHNICIAN
366 TELLER
367 TEN
368 TEST
369 THE
370 THEATRE
371 TICKET
372 TILL
373 TO
374 TOILET
375 TOOL
376 TOP
377 TRACK
378 TRADE
379 TRAINING
380 TRANSPORT
381 TRAP
382 T.V.
383 TWIN
384 TYPE
385 TYPING
386 TYRE

387 U
388 ULTRA-SONIC
389 UNDER
390 UNIT
391 UP
392 UPPER
393 UPSTAIRS
394 USER
395 UTILITY

396 V
397 VAN
398 VAULT
399 VISUAL
400 VOLTAGE

401 W
402 WAITING
403 WALK
404 WALL
405 WARD
406 WAREHOUSE
407 WASH
408 WATER
409 WAY
410 W.C.
411 WEAPON
412 WEEKEND
413 WEST
414 WINDOW
415 WINTER
416 WITH
417 WOOD
418 WORK
419 WORKS
420 WORKSHOP

421 X

422 Y
423 YARD
424 YEAR
425 YELLOW

426 Z
427 ZONE

428 1
429 IST
430 10
431 11
432 12
433 13
434 14
435 15
436 16
437 17
438 18
439 19
440 2
441 2ND
442 20
443 3
444 3RD
445 4
446 4TH
447 5
448 5TH
449 6
450 6TH
451 7
452 7TH
453 8
454 8TH
455 9
456 9TH
457 0
458 !
459 &
460 .

Programmable Ouputs

The programmable outputs from the NU and the REM, are referred to as the Node Outputs and are activated in response to various conditions or events. They are programmed to respond to System, Ward or Circuit activation.

Panel outputs are from the CP and are programmed in the same way as the Node outputs. Outputs 1 to 8 are from the Parallel Interface Board, if fitted, and 9 to 16 are for the DC3 or DC3M Digicom if fitted.

The System activated outputs may be allocated to any Node (NU or REM) output or the Panel (CP) outputs. They are designated by their function and may be programmed to be active if required. The following are available:

(1) Alarm: A system alarm is present;
(2) P. A.: A Personal Attack circuit or a Duress Alarm has been activated;
(3) Set: The system is Set;
(4) Fire: A Fire circuit has been activated;
(5) Medical: A Medical circuit has been activated;
(6) Tamper: A Tamper alarm is present;
(7) Aux: An Auxiliary circuit has been activated;
(8) Set Fail: An attempt to set the system has failed;
(9) Site Engr: The Engineer's passcode has been entered. The output will remain active until a User passcode is entered;
(10) Lock-Alarm: The system has not been Set before the start of the Time Lock period;
(11) Test-Fail: A test failure has occurred;
(12) AC Alarm: The mains supply to the PSU has not been present for the mains fail time period;
(13) AC Off: The mains supply to the PSU is not present or there is no 12V output;
(14) Batt Fault: During the PSU test or while the mains is off the PSU Battery voltage is low.
(15) Bell: The CP bell output is activated;
(16) Strobe: The CP strobe output is activated;
(17) Switch +12: The system is Set and is not in alarm;
(18) Walk Test +: A Walk Test is in progress (use output A or B);
(19) Walk Test –: A Walk Test is in progress (use output C or D);
(20) Line Fault: A Digicom telephone line fault is present;
(21) Time Switch: The programmed Time Switch is active;
(22) Time Locked: The system has been Time Locked and cannot be unset;
(23) Entry Mode: Entry mode has been initiated;
(24) 2nd Entry: The first Entry time has timed out before a passcode entry
(25) Exit Mode: System Exit procedure has been initiated;
(26) Exit Setting: Final Exit setting is in progress
(27) Exit Error: An error occurred during the exit procedure and the system cannot set
(28) Lock Alert: The programmed Time Lock period is about to start;
(29) Fire/Viper: Will provide 12V (100mA source) to devices which latch when activated and which are unlatched when power is removed. The output is removed for about 3 seconds when unsetting the system after an alarm at the second passcode entry;
(30) PSU Test: Connected to remote PSU to initiate a battery test;

CAUTION: It is essential to ensure that the correct outputs that will source (supply) or sink (accept) current are selected to match the function required.

Menus Listing in Sequence

NOTES:
Users will enter menus at Menu 1
Engineer will enter menus at Menu 15
User Level 5 (Standard W) can only set and unset designated wards
Instant access to Menus from a keyboard number entry applies to Menus 1 to 9 only
Menu 2 is only available if a Ward is Set;
Menu 7 is only available if there are circuits with attribute omit
Menu 9 is only available if a printer is connected or the SIB is fitted
Menu 17 is only available if a Ward is defined
Menu 24 is only available if a DC3(M) is fitted
Menu 25 is only available if Engineer Reset is programmed and a reset is required

(Passcode) Levels:

1 Engineer
2 Master
3 Manager
4 Standard S
5 Standard W
6 Restricted

Menus Listing in Sequence

	Menu No	Menu	Passcode Level
→ User	1	Start Set Sequence	1, 2, 3, 4, 5, 6
	2	Unset Wards	1, 2, 3, 4, 5, 6
	3	View Circuits	1, 2, 3, 4, 5, 6
	4	View Event Log	1, 2, 3
	5	Select Walk Test	1, 2, 3, 4, 5
	6	Select Bell Test	1, 2, 3, 4, 5
	7	Omit/Enable Circuit	1, 2, 3
	8	Use Chime Facility	1, 2, 3
	9	Use the Printer	1, 2, 3,
	10	Alter Clock	1, 2
	11	Alter Passcode	1, 3, 4, 5, 6
	12	Define Users	2
	13	Alter Time Switch	1, 2
	14	Alter Time Lock	1, 2
→ Eng’r	15	Define Circuits	1
	16	Define Outputs	1
	17	Review Wards	1
	18	Define Ward Alarms	1
	19	Define Timers	1
	20	Define Panel Modes	1
	21	Use Test Options	1
	22	User Network Options	1
	23	Define Circuit Text	1, 2
	24	Install DC3	1,
	25	Reset by Remote	2

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